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C-A OPERATIONS PROCEDURES MANUAL

7.1.50 Purge of Warm Expander Inlet Filter

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Hand Processed Changes

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Approved: _____ *Signature on File* _____
Collider-Accelerator Department Chairman Date

D. Lederle

7.1.50 Purge of Warm Expander Inlet Filter

1. Purpose

To provide instruction for purging the warm expander inlet filters to remove air and moisture from the filters.

2. Responsibilities

- 2.1 The Shift Supervisor or an operator designated by the Shift Supervisor is responsible for conducting the procedure and providing documentation in the cryogenic control room log.
- 2.2 Should a problem arise in the process of purging an expander, the shift supervisor shall report to the technical supervisor for instructions before continuing.

3. Prerequisites

- 3.1 The filter must be offline while purging.
- 3.2 The pure helium supply line must be pressurized.

4. Precautions

If there is liquid in the refrigerator pots, all personnel entering the refrigerator wing of Bldg. 1005R must be ODH Class 1 qualified, have a Personal Oxygen Monitor (POM) and carry an emergency escape pack.

5. Procedure

5.1 Purge "A" train filter FA1 as follows:

- _____ 5.1.1 Ensure filter isolation valves H9136M_____ and H9139M_____ are closed.
- _____ 5.1.2 Ensure closed filter purge valve H9141M.
- _____ 5.1.3 Align pure helium supply by closing valves H6181M_____, H9118M_____, and H9119M_____. Open valve H417M_____.
- _____ 5.1.4 Connect flex line to valve H9119M.
- _____ 5.1.5 Purge flex line and connect to filter valve H9141M.

- _____ 5.1.6 Open valves H9119M____, H9140M____, H9137M____ and H9138M_____.
- _____ 5.1.7 Throttle valve H9141M to produce an audible purge.
- _____ 5.1.8 When vent piping is approximately ambient temperature, stop the purge by closing valves H9138M____, H9141M____, H9140M____ and H9137M_____.
- _____ 5.1.9 Close valve H9119M.
- _____ 5.1.10 Vent flex line through valve H6181M and disconnect.
- _____ 5.1.11 Open filter outlet valve H9139M as a sign that filter FA1 is ready for service.
- 5.2 Purge “A” train FA2 filter as follows:
 - _____ 5.2.1 Ensure filter isolation valves H9144M____ and H9146M____ are closed.
 - _____ 5.2.2 Ensure filter purge valve H9147M is closed.
 - _____ 5.2.3 Align pure helium supply by closing valves H6181M____, H9118M____ and H919M____. Open valve H417M_____.
 - _____ 5.2.4 Connect flex line to valve H9119M.
 - _____ 5.2.5 Purge flex line and connect to filter valve H9147M.
 - _____ 5.2.6 Open valves H9119M____, H6168M____, H6167M____ and H9145M_____.
 - _____ 5.2.7 Throttle valve H9147M to produce an audible purge.
 - _____ 5.2.8 When vent piping is approximately ambient temperature, stop the purge by closing valves H9145M____, H9147M____, H6168M____ and H6167M_____.
 - _____ 5.2.9 Close valve H9119M.
 - _____ 5.2.10 Vent flex line through valve H6181M and disconnect.
 - _____ 5.2.11 Open filter outlet valve H9146M as a sign that filter FA2 is ready for service.

5.3 Purge “B” train filter FB1 as follows:

- _____ 5.3.1 Ensure filter isolation valves H9122M_____ and H9125M_____ are closed.
- _____ 5.3.2 Ensure filter purge valve H9127M is closed.
- _____ 5.3.3 Align pure helium supply by closing valves H6181M_____, H9118M_____ and H919M_____. Open valve H417M_____.
- _____ 5.3.4 Connect flex line to valve H9119M.
- _____ 5.3.5 Purge flex line and connect to filter valve H9127M.
- _____ 5.3.6 Open valves H9119M_____, H9126M_____, H9123M_____ and H9124M_____.
- _____ 5.3.7 Throttle valve H9127M to produce an audible purge.
- _____ 5.3.8 When vent piping is approximately ambient temperature, stop the purge by closing valves H9124M_____, H9127M_____, H9126M_____ and H9123M_____.
- _____ 5.3.9 Close valve H9119M.
- _____ 5.3.10 Vent flex line through valve H6181M and disconnect.
- _____ 5.3.11 Open filter outlet valve H9125M as a sign that filter FB1 is ready for service.

5.4 Purge “B” train filter FB2 as follows:

- _____ 5.4.1 Ensure filter isolation valves H9130M_____ and H9132M_____ are closed.
- _____ 5.4.2 Ensure filter purge valve H9133M is closed.
- _____ 5.4.3 Align pure helium supply by closing valves H6181M_____, H9118M_____ and H919M_____. Open valve H417M_____.
- _____ 5.4.4 Connect flex line to valve H9119M.
- _____ 5.4.5 Purge flex line and connect to filter valve H9131M.
- _____ 5.4.6 Open valves H9119M_____, H6166M_____, H6165M_____ and H9131M_____.
- _____ 5.4.7 Throttle valve H9133M to produce an audible purge.

_____ 5.4.8 When vent piping is approximately ambient temperature, stop the purge by closing valves H9131M_____, H9133M_____, H6166M_____ and H6165M_____.

_____ 5.4.9 Close valve H9119M.

_____ 5.4.10 Vent flex line through valve H6181M and disconnect.

_____ 5.4.11 Open filter outlet valve H9132M as a sign that filter FB2 is ready for service.

6. **Documentation**

6.1 The check off lines on the procedure are for place keeping only. The procedure is not to be initialed or signed, it is not a record.

6.2 The Shift Supervisor, or designee, shall document the completion of the procedure in the cryogenics control room log.

7. **References**

7.1 Drawing 3A995009, 25 kw Helium Refrigerator P&ID

8. **Attachments**

None